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May 2, 2014

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station, Unit 2
Renewed Facility Operating License No. NPF-69
Docket No. 50-410

Licensee Event Report 2014-003, Uninterruptible Power Supply Failure and
Subsequent Manual Scram

In accordance with 10 CFR 50.73(a)(2)(iv)(A), please find attached Licensee Event Report 2014-003, Uninterruptible Power Supply Failure and Subsequent Manual Scram.

There are no regulatory commitments in this submittal.

Should you have questions regarding the information in this submittal, please contact Everett (Chip) Perkins, Director Licensing, at (315) 349-5219.

Sincerely,

A handwritten signature in black ink, appearing to be "J. Stanley", with a long horizontal line extending to the right.

JJS/KP

Attachment: Licensee Event Report 2014-003, Uninterruptible Power Supply Failure and
Subsequent Manual Scram

cc: NRC Project Manager
NRC Resident Inspector
NRC Regional Administrator

TE22
NRR

ATTACHMENT

LICENSEE EVENT REPORT 2014-003

**UNINTERRUPTIBLE POWER SUPPLY FAILURE AND
SUBSEQUENT MANUAL SCRAM**

**Nine Mile Point Nuclear Station, LLC
May 2, 2014**

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Nine Mile Point Unit 2	2. DOCKET NUMBER 05000410	3. PAGE 1 OF 6
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4. TITLE
Uninterruptible Power Supply Failure and Subsequent Manual Scram

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
3	4	2014	2014	003	00	5	2	2014	NA	NA
									FACILITY NAME	DOCKET NUMBER
									NA	NA

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. POWER LEVEL 100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Everett Perkins, Director, Licensing	TELEPHONE NUMBER (Include Area Code) (315) 349-5219
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
D	EE	UJX	ELGAR	Y	NA	NA	NA	NA	NA

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH DAY YEAR NA NA NA
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On March 4, 2014, at approximately 0143, Nine Mile Point Unit 2 (NMP2) was manually scrambled because of rising reactor recirculation pump (RRP) seal and motor temperatures. Prior to the scram, a failure of the Uninterruptible Power Supply, 2VBB-UPS3B, to provide uninterruptible power occurred. The malfunction of the Uninterruptible Power Supply (UPS) resulted in the inboard Primary Containment cooling water isolation valves closing and a Reactor Protection System (RPS) half scram. The closing of the inboard isolation valves resulted in the loss of cooling flow to the RRP seals and motors. The cause of the UPS malfunction was a degraded subcomponent associated with the UPS. The causal analysis for this event identified that it resulted from inadequate vendor and industry guidance/operating experience associated with the maintenance of a UPS related subcomponent. Corrective actions planned or taken include replacing degraded UPS subcomponents, revising preventative maintenance strategy, and working with the vendor to identify a list of single point of vulnerability (SPV) components that can prohibit the UPS from transferring to its alternate source when needed. The reportable condition described in this LER is documented in the plant's corrective action program as CR-2014-001725.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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NARRATIVE**I. DESCRIPTION OF EVENT****A. PRE-EVENT PLANT CONDITIONS:**

Prior to the event, Nine Mile Point Unit 2 (NMP2) was operating at rated reactor power.

B. EVENT:

NMP 2 was manually scrammed on March 4, 2014 at 0143. This event was preceded by several contributing conditions. A malfunction of Uninterruptible Power Supply (UPS), 2VBB-UPS3B, to provide uninterruptible power occurred at 0137. This resulted in the tripping of the Electrical Power Assemblies (EPA). The malfunction of the UPS also resulted in a half scram on the Reactor Protection System (RPS) "A" side and the inboard Primary Containment cooling water isolation valves closing. The Reactor Building Closed Loop Cooling (CCP) water valves automatically closed to the reactor recirculation pumps (RRPs) which caused temperatures to the RRP seal cavities and motors to increase. This condition resulted in operators inserting a manual scram. The loss of reactor building ventilation radiation monitoring was another reportable condition created by the UPS failure to provide uninterruptible power.

Operations responded to plant conditions that led to the event by entering N2-SOP-97, Reactor Protection System Failures which directed entry into N2-SOP-29.1, Reactor Recirculation Pump Failures. With the isolation of the RRP cooling water due to the loss of the UPS, Operations performed a manual scram of the reactor before securing the RRPs. UPS 2VBB-UPS3B was shut down and placed on maintenance bypass per N2-OP-71D, Uninterruptible Power Supplies (UPS).

Nine Mile Point Unit 1 (NMP1) was unaffected by the UPS failure and subsequent manual scram at NMP2.

This event has been entered into the corrective action program as CR-2014-001725.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

The loss of the UPS caused the safety related EPA breakers to open due to a detected undervoltage condition. As a result, the containment isolation logic de-energized initiating a containment isolation signal which resulted in a loss of cooling flow to the RRP seals and motors. Rising RRP seal and motor temperatures resulted in operators inserting a manual scram of the reactor.

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D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

March 4

01:40 Entered N2-SOP-97 due to loss of 2VBB-UPS3B
 01:41 Entered N2-SOP-29.1 due to loss of cooling to both RRP's
 01:43 Exceeded N2-SOP-29.1 danger limit for RCS pump seal cavity temperatures (limit 200°F). RRP A No. 1 seal cavity temp 215°F. RRP B No. 1 seal cavity temp 211°F
 01:43 Manually scrammed the reactor
 05:08 Completed shutting down 2VBB-UPS3B and placed on maintenance bypass per N2-OP-71D

E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

No other systems or secondary functions were affected.

F. METHOD OF DISCOVERY:

The event was recognized when operators entered N2-SOP-97 due to the loss of 2VBB-UPS3B.

G. MAJOR OPERATOR ACTION:

Operations personnel made entries into N2-SOP-97 due to the loss of the UPS. Personnel also entered N2-SOP-29.1 due to loss of cooling to the RRP's. The reactor was manually scrammed per N2-SOP-101C, Reactor Scram. Operations completed shutting down 2VBB-UPS3B and it was placed on maintenance bypass per N2-OP-71D.

H. SAFETY SYSTEM RESPONSES:

Safety related equipment downstream of the non-safety related UPS functioned as designed on the loss of the AC power supply resulting in a manual scram without complications. The 2VBB-UPS3B is designed to auto transfer from its normal AC and DC feeds to the maintenance AC supply in sufficient time to preclude loss of voltage to 2VBS*PNLB100. The 2VBB-UPS3B did not transfer to the alternate maintenance supply as expected to prevent tripping of the EPA assemblies.

II. CAUSE OF EVENT:

The cause of the event was the loss of the UPS which resulted in rising temperatures to the RRP seals and motors. The rise in temperature for these components resulted in a manual scram of the reactor. The malfunction of the UPS was due to the degraded material condition of an associated subcomponent which prevented the 2VBB-UPS3B from performing its design function.

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III. ANALYSIS OF THE EVENT:

This event is reportable under the provisions of 10 CFR 50.72(b)(2)(iv)(B), and 10 CFR 50.73(a)(2)(iv)(A). The event caused a valid actuation of a safety system named in 10 CFR 50.73(a)(2)(iv)(B) and the actuation was not part of a preplanned sequence during testing or reactor operation. The loss of the reactor building vent gaseous effluent monitoring system is reportable under 10CFR50.72(b)(3)(xiii) as a condition that resulted in the loss of emergency response assessment capabilities. The UPS malfunction resulted from the degraded condition of a subcomponent. This degradation resulted in a failure of the Static Switch Sense Board (J4 card) to detect fault conditions on the UPS and provide control signals to the Static Switch Drive Logic Board (J5 card), resulting in either a slow or no transfer to the alternate maintenance supply.

Nine Mile Point Unit 2 is equipped with two 10-KVA UPSs (2VBB-UPS3A and 2VBB-UPS3B) that feed RPS logic trip channel loads and main steam line isolation valves (MSIV) control solenoids through their associated distribution panels 2VBS*PNLA100 and 2VBS*PNLB100, and associated subpanels. These panel boards are fed from non-safety related power supplies because the control circuits supplied from these panel boards return to a fail-safe mode upon loss of electrical power. The RPS and the MSIV are fail-safe systems (de-energize to operate), i.e., failure of the power supply causes a reactor scram and isolation, therefore, the UPS's feeding these systems are classified as non-safety related.

The March 4, 2014 reactor manual scram is bounded by the Updated Safety Analysis Report (USAR) described transient assumed in Chapter 15.1. The reactor was scrammed and water level was maintained by the feedwater/condensate systems and pressure was controlled by electrohydraulic control (EHC). All control rods inserted on the reactor scram signal. The difference from a normal scram was that both reactor recirculation pumps were tripped immediately after the scram signal. The trip of both recirculation pumps is bounded by the transient described in USAR Chapter 15.3. The transient described in the USAR is terminated by the reactor pressure vessel level 8 (L8) trip and subsequent turbine trip resulting in a reactor scram. In the actual transient, operator action was taken prior to any adverse trends in reactor water level. The Mode Switch was placed in shutdown in accordance with N2-SOP-97. These actions are more conservative than those covered in either USAR Chapter 15 sections; therefore, this transient is fully bounded by the event analysis described in these sections.

The event described in this LER affects the NRC Regulatory Oversight Process (ROP) Index for unplanned scrams. Due to the March 4 scram, the unplanned scrams index value will be 1.67 compared to the Green-to-White threshold value of greater than 3.

Based on the above discussion, it is concluded that the safety significance of this event is low and the event did not pose a threat to the health and safety of the public or plant personnel.

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IV. CORRECTIVE ACTIONS:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

For the degraded UPS, the following actions were taken:

- Replaced the J4 circuit card
- Replaced the backplane
- Calibrated the UPS

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

1. For 2VBA*UPS2A/B and 2VBB-UPS3A/B, replace backplane, J4, J5, oscillator board (J3), static switch drive, and other components as identified.
2. Work with the vendor to identify a comprehensive list of single point of vulnerability (SPV) components that can prohibit the UPS from transferring to its alternate source when needed.
3. Revise preventative maintenance strategy to include replacement of all SPV components in 2VBA*UPS2A/B and 2VBB-UPS3A/B.

V. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

The failed subcomponent that resulted in the UPS not performing its function was the J4 card. The degraded condition of the J4 card was attributed to a failed capacitor.

B. PREVIOUS LERs ON SIMILAR EVENTS:

LER 2003-001 identified that on July 24, 2003, NMP2 experienced a power supply failure resulting in power and flow perturbations that lead to an automatic reactor scram. NMP2 was at approximately 100 percent power when the power supply failed, and was at approximately 45 percent power at the time of the scram. The cause of the power and flow perturbations was the failure of non-safety related power supply C33-K611 (Lambda Model LRS-54-24). The power supply failed because of the age related failure of internal components and no preventive maintenance activity to refurbish or replace the power supply.

LER 2013-004 identified that on December 2, 2013, NMP2 was lowering reactor power level to remove the main turbine from service to support maintenance. During the power reduction, the Low Frequency Motor Generators (LFMGs) did not start automatically. Attempts to manually start the recirculation system pumps in slow speed were unsuccessful and a manual reactor scram was inserted due to the sudden reduction in core flow. The root cause of this event is a failure to identify that the switches in the auto transfer circuits for the reactor recirculation pumps to shift from high speed to low speed are SPV components.

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C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

<u>COMPONENT</u>	<u>IEEE 803 FUNCTION IDENTIFIER</u>	<u>IEEE 805 SYSTEM IDENTIFICATION</u>
Uninterruptible Power Supply Electric	UJX	EE
Reactor Recirculation Pumps	P	AD

D. SPECIAL COMMENTS:

None